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ABSTRACT

In fall 1980, a block scheduled developmental semester was offered for the first time at the Boyce Campus of the Community College of Allegheny County. The program was composed of three integrated courses: "Man, Time, and Social Change," a social science elective; "Basic Writing Techniques," a developmental English course; and "College Reading and Study Skills," a social science elective. All students in the block were registered for specifically designated sections of each of the three courses. A study was conducted to compare the academic performance of an experimental group of block-scheduled students and a control group of non-block students. The study utilized pre- and post-test measures of students' attitudes, anxieties, and specific learning behaviors. Study findings, based on comparisons of block and non-block students on the pre- and post-tests and other measures of academic achievement, included the following: (1) there were no statistically significant differences between the groups on the pre-test results; (2) post-test scores showed statistically significant advantages in attitudes, learning behaviors, and learning anxiety for the block group over the non-block group; (3) other indicators favoring the block students over the non-block students included dropout rates (20% vs. 32.5%), absentee rates (4.2% vs. 13.5%), and grade point averages (2.31 vs. 1.31). (HB)

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SUMMARY OF AN INVESTIGATION INTO THE RELATIVE EFFECTS ON STUDENT PERFORMANCE ON A "BLOCK" VS A "NON-BLOCK" SCHEDULED DEVELOPMENTAL SEMESTER (PRETEST-POSTTEST CONTROL GROUP DESIGN)

SUBMITTED BY:

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TO:

Developmental Education Committee

CCAC, BOYCE CAMPUS

February 15, 1983

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THE BLOCK SCHEDULED DEVELOPMENTAL SEMESTER

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Description Beginning with the Fall 1980 Semester, a Block Scheduled Developmental Semester was offered for the first time at the Boyce Campus of the Community College of Allegheny County. The Block Scheduled Developmental Semester was composed of a block of three integrated courses (9 credits): Man, Time and Social Change (Social Science Elective); Basic Writing Techniques (Developmental English Course); and, College Reading and Study Skills (Social Science Elective). All students in the "Block" were registered for specifically designated sections of each of the three courses. In addition, most students also registered for at least one other course in their chosen program of studies.

Design An Experimental/Control group pretest-posttest design was used for the purpose of data collection relative to analysis of comparative effects on student performance.

Outcomes Block scheduled students' (Experimental group) pretest measures of attitudes (Table 1), anxieties (Table 2) and 17 specific learning behaviors (Table 3) showed no statistically significant differences when compared to the Control group, i.e., the Control and Experimental groups were equivalent at the start of the semester, thus any differences observed at the end of the semester had a high probability of being accounted for in terms of the difference in the treatment.

Differences between the Control and Experimental groups on the posttests showed statistically significant advantages for the Experimental group on almost all variables observed. The Semantic Differential, the instrument used to measure attitude change, showed a statistically significant difference favoring the Experimental group at the .005 level of confidence on three of the five scales used (Table 4). Posttest scores on the Learning Behavior Inventory, the instrument used to measure learning behavior changes relative to 17 factors, showed a statistically significant difference favoring the Experimental group at the .05 level of confidence on 9 of the 17 scales used (Table 5). Finally, posttest scores on the Anxiety Survey, the instrument used to measure learner anxiety, showed differences favoring the Experimental group; however, there were statistically significant differences in only two of the seven scales used (Table 6).

Other indices used also tended to favor the experimental group, e.g., the dropout rate for block scheduled students was 20% and for non-block scheduled students it was 32.5% (Table 7); the absentee rate for block students was 4.2% as compared to the non-block students absentee rate of 13.5% (Table 8); the Q.P.A. earned by block students was higher (statistically significant at the .005 level) than the Q.P.A. earned by the non-block students (Table 9); finally, there were no statistically significant differences between the groups when the "Iowa Basic Reading Tests" was used as the posttest measure of improvement in reading skills (Table 10).

In summary, the use of the Block Scheduled Developmental Semester as a strategy for increasing student success seems to be supported by the data.

TABLE 1

Semantic Differential

Pre-Mean Scores and Variance of Block Students and
Pre-Mean Scores and Variance of Non-Block Students

n=22/36

	Pre-Test Block			Pre-Test Non-Block			
	$\bar{X}$	s	s^2	$\bar{X}$	s	s^2	t
Studying	24.68	5.55	30.85	25.33	5.30	28.06	.40
Teachers	29.18	5.10	25.97	29.58	6.76	45.69	.26
Myself	29.86	4.75	22.57	29.00	5.97	35.61	.61
Tests	23.41	6.64	44.10	22.86	7.03	49.40	.30
Classes	29.45	6.32	39.88	28.22	5.37	28.84	.76
Totals	27.32	2.71	7.34	26.00	2.53	6.41	.94

* p .05/d.f.=21/35
** p .01/d.f.=21/35
*** p .005/d.f.=21/35

TABLE 2

Anxiety Survey

Pre Mean Scores and Variance of Block Students and Pre Mean Scores and Variance of Non-Block Students

n=22/36

	Pre-Test Block			Pre-Test Non-Block			
	$\bar{X}$	s	s^2	$\bar{X}$	s	s^2	t
Calls Upon	3.00	.80	.64	2.89	.69	.49	.52
Studying Chapter	2.73	.62	.38	2.69	.74	.55	.20
Announce Test	3.41	1.03	1.06	2.83	.99	.97	2.07*
Study for Test	3.09	1.12	1.26	2.97	1.01	1.03	.40
Take Test	3.36	1.11	1.23	3.06	.94	.89	1.03
Test Mistakes	3.14	.97	.94	3.03	.87	.75	.44
Surprise Test	3.91	.90	.81	3.33	.62	.39	2.52**
Totals	3.23	.35	.12	2.97	.19	.43	1.86*

* p .05/d.f.=21/35
** p .01/d.f.=21/35
*** p .005/d.f.=21/35

TABLE 3

Learning Behavior Inventory

Pre Mean Scores and Variance of Block Students and
Pre Mean Scores and Variance of Non-Block Students

n=22/36

	Pre-Test Block			Pre-Test Non-Block			
	$\bar{X}$	s	s^2	$\bar{X}$	s	s^2	t
Attends Class	4.73	.69	.47	4.98	.16	.03	1.79*
Pays Attention	4.23	.60	.36	4.44	.60	.36	1.24
Takes Class Notes	4.18	.72	.51	4.14	.95	.89	.20
Organizes Class Notes	3.55	.99	.98	4.03	1.04	1.08	1.85*
Underlines Text	2.81	1.37	1.79	2.75	1.19	1.41	.17
Takes Text Notes	3.09	1.35	1.81	3.36	1.21	1.45	.77
Reorganizes Text Notes	2.77	1.24	1.54	3.47	1.36	1.86	.20
Relates Text Notes	3.23	1.17	1.36	3.61	1.19	1.40	1.23
Ideas in Own Words	3.68	.92	.86	3.97	.99	.97	1.12
Completes Work	4.64	.57	.32	4.36	.75	.56	1.65*
Asks Class Questions	2.95	1.36	1.86	3.19	1.02	1.05	.73
Answers Class Questions	2.91	1.40	1.54	3.14	.89	.79	.77
Asks for Help	3.91	1.12	1.26	3.81	1.08	1.16	.36
Works Co-operatively	4.41	.83	.70	4.14	1.03	1.06	1.13
Tests Self	3.14	1.25	1.57	2.86	1.25	1.56	.85
Studies with Others	2.18	1.30	1.51	2.42	1.36	1.85	.65
Takes Tests	3.95	.77	.59	4.28	.87	.76	1.50
Totals	3.55	.72	.52	3.70	.67	.44	.88

* p .05/ d.f.=21/35
** p .01/ d.f.=21/35
*** p .005/d.f.=21/35

TABLE 4

Semantic Differential

Post Mean Scores and Variance of Block Students and
Post Mean Scores and Variance of Non-Block Students

n=22/26

	Post-Test Block			Post-Test Non-Block			
	$\bar{X}$	s	s^2	$\bar{X}$	s	s^2	t
Studying	28.73	5.46	29.83	24.23	5.73	32.79	2.78**
Teachers	32.95	4.88	23.86	32.23	5.44	29.64	.48
Myself	33.73	4.52	20.47	29.54	5.31	28.17	2.95***
Tests	31.27	5.66	32.02	24.88	8.76	76.72	3.04***
Classes	30.59	7.26	52.78	29.58	6.49	42.10	.55
Totals	31.57	1.72	2.98	28.08	3.05	9.29	6.98***

* p .05/ d.f.=21/25
** p .01/ d.f.=21/25
*** p .005/ d.f.=21/25

TABLE 5

Learning Behavior Inventory

Post Mean Scores and Variance of Block Students and
Post Mean Scores and Variance of Non-Block Students

n=22/26

	Post-Test Block			Post-Test Non-Block			
	$\bar{X}$	s	s^2	$\bar{X}$	s	s^2	t
Attends Class	4.73	.45	.20	4.50	.64	.40	1.35
Pays Attention	4.86	.34	.12	4.54	.63	.40	1.88*
Takes Class Notes	4.68	.70	.49	4.12	1.15	1.33	2.15*
Organizes Class Notes	4.14	.76	.57	3.65	1.07	1.15	1.88*
Underlines Text	3.45	1.08	1.16	2.58	1.52	2.32	2.35*
Takes Text Notes	3.50	1.12	1.25	2.81	1.30	1.69	2.03*
Reorganizes Text Notes	3.55	1.23	1.52	2.96	1.34	1.81	1.59
Relates Text Notes	3.73	1.09	1.98	3.00	1.39	1.92	1.78*
Ideas in Own Words	4.09	.95	.90	3.46	1.12	1.25	2.10*
Completes Work	4.63	.48	.23	4.31	.91	.83	1.60
Asks Class Questions	3.68	1.33	1.76	3.73	1.35	1.81	.13
Answers Class Questions	3.86	1.03	1.03	3.46	1.08	1.17	1.25
Asks for Help	4.18	1.15	1.33	4.08	1.03	1.07	.31
Works Co-operatively	4.55	.66	.43	4.35	.92	.84	.91
Tests Self	3.32	1.18	1.40	3.35	1.14	1.30	.09
Studies with Others	2.41	1.15	1.33	1.85	1.03	1.05	1.75*
Takes Tests	4.27	.75	.56	4.27	.90	.81	0
Totals	3.99	.62	.38	3.59	.74	.55	2.00*

* p .05/d.f.=21/25
** p .01/d.f.=21/25
*** p .005/d.f.=21/25

TABLE 6

Anxiety Survey

Post Mean Scores and Variance of Block Students and
Post Mean Scores and Variance of Non-Block Students
n=22/26

	Post-Test Block			Post-Test Non-Block			
	$\bar{X}$	s	s^2	$\bar{X}$	s	s^2	t
Calls Upon	2.09	.73	.54	2.81	.83	.69	3.27***
Studying Chapter	2.14	.76	.57	2.27	.76	.58	.60
Announce Test	2.86	1.06	1.12	2.80	1.00	1.00	.20
Study for Test	2.45	1.08	1.16	2.96	1.09	1.19	1.60
Take Test	2.64	.93	.87	2.96	1.09	1.19	1.07
Test Mistakes	2.55	.58	.34	3.08	1.07	1.15	2.21*
Surprise Test	2.86	1.06	1.12	3.23	.93	.87	1.32
Totals	2.51	.29	.08	2.83	.29	.53	.79

* p .05/ d.f.=21/25
** p .01/ d.f.=21/25
*** p .005/d.f.=21/25

TABLE 7

Retention of Fall 1980 Block and Non-Block Students for the Spring 1981 Semester

n=25/40

Block					Non-Block				
Registered Fall 1980	Retained Spring 1981		Drop-outs		Registered Fall 1980	Retained Spring 1981		Drop-outs	
Number	No.	%	No.	%	Number	No.	%	No.	%
25	20	80	5	20	40	27	67.5	13	32.5

TABLE 8

Block and Non-Block Student Attendance Patterns
n=14/11*

Block				Non-Block			
Number Students	- 0 - Absences	Total Absences	Absentee %	Number Students	- 0 - Absences	Total Absences	Absentee %
14	4	26	4.20	11	0	60	13.45

* One Non-Block and Three Non-Block Students stopped attending class and were not included in data computation.

TABLE 9

Comparison of Block and Non-Block Student
Mean Q.P.A. for Fall 1980 Semester

n=24/37

Block Q.P.A.			Non-Block Q.P.A.			
$\bar{X}$	s	s^2	$\bar{X}$	s	s^2	t
2.31	.95	.89	1.95	1.14	1.31	4.5***

*** p .005/d.f.=23/36

TABLE 10

Comparison of Block and Non-Block Student
Raw Score on the Iowa Basic Reading Test:
Test 2, Comprehension

n=21/28

	Pre-Test			Post-Test			
	$\bar{X}$	s	s^2	$\bar{X}$	s	s^2	t
Block	30.45	2.63	6.92	32.50	5.52	30.47	1.01*
Non-Block	28.40	7.79	60.71				.53**

* Block Student Pre-Post Mean Scores
** Block Student Pre-Mean Score and Non-Block Student Pre-Mean Score

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